

## ABSTRACT

5 A battery charging system comprising: a current source; a battery; and a voltage and current regulator, which regulates voltage applied to the battery and current supplied to the battery. The battery charging system shapes the current supplied to the battery, and may be used to taper the current supplied to the battery. The voltage and current regulator may comprise: an adjustable band-gap voltage reference diode, a  
10 potentiometer, a resistor, and a transistor, or an adjustable shunt regulator, and a transistor operating in conjunction with the adjustable shunt regulator, or other suitable voltage and current regulator means. The battery charging system regulates the current flow supplied to the battery, which originates from a constant charging current source. As the battery voltage exceeds a predefined terminal voltage, the battery charging  
15 system diverts charging current through a transistor, thus clamping the battery at the terminal voltage and shaping the current supplied to the battery.